Identify the hypothesis and the conclusion of each conditional statement.

1.If two angles are vertical angles, then the two angles are congruent.

2.If you stay up late, then you will be tired.

3.If Sam does not get a C or above on his midterm, then he will fail the class.

4.If Sandy can beat Jeff in a foot race, then Sandy is a faster runner than Jeff.

5.If you live in Riverside, then you live in California.

6.If two lines are perpendicular, then the two lines intersect at right angles.

7.If two angles are supplementary, then the measure of their sum equals 180o.

8.If it is black, then it is not white.

9.If points lie in the same plane, then the points are coplanar.

10.If you live in Texas, then you live in the U.S.A.

11.If two lines intersect at right angles, then the two lines are perpendicular.

12.If n is an even number, then n2 is an even number.

Rewrite the following statements as a conditional statement:

13.The gas tank is empty, so the tank needs gasoline.

14.The players on the team played a poor game, so the game was lost.

15.Nancy was late for her meeting because she lost track of time.

16.Colin received a late charge because he forgot to send in his payment.

Write the converse of the following conditional statements:

17.If two angles are vertical angles, then the two angles are congruent.

18.If you stay up late, then you will be tired.

19.If Sam does not get a C or above on his midterm, then he will fail the class.

20.If Sandy can beat Jeff in a foot race, then Sandy is a faster runner than Jeff.

21.If you live in Riverside, then you live in California.

22.If two lines are perpendicular, then the two lines intersect at right angles.

23.If two angles are supplementary, then the measure of their sum equals 180o.

24.If it is black, then it is not white.

25.If three points lie in the same plane, then the three points are coplanar.

26.If you live in Texas, then you live in the U.S.A.

27.If two lines intersect at right angles, then the two lines are perpendicular.

28.If n is an even number, then n2 is an even number.

Find the following:

29.Identify which of the statements from #1 - #6 are biconditional.

30.Identify which of the statements from #7 - #12 are biconditional.

Determine if the following "if and only if" statements are valid or invalid and justify your answer.   If false, give a counterexample.

31.It is raining iff the grass gets wet.

32.You live in Texas iff you are an American.

33.The animal is a mammal iff the animal is a chimpanzee.

34.(Assume 2-D space) Two lines are parallel iff they have the same slope.

35.(Assume 2-D space) Two lines are parallel iff the two lines do not intersect.

36.Two lines are perpendicular iff the two lines intersect at right angles.

37.x = 0 iff x is an integer.

38.It is blue iff it is not green.

39.x is an integer iff x is rational.

40.A triangle has a right angle iff the triangle is a right triangle.

41.Two angles are congruent iff they have the same measure.

42.Two angles are supplementary iff the sum of the two angles equals 180o.

43.Dustin gets a speeding ticket iff Dustin goes to traffic school.

44.n is an even integer iff n2 is an even integer.

45.A person is a doctor iff the person is a college graduate.

46.x is a natural number iff x is a real number.

47.An object is a square iff it is not a triangle.

48.Duke is a Pomeranian iff Duke is a dog.

Write a syllogism with these three phrases:

49.Dustin speeds, Dustin gets a speeding ticket, Dustin's insurance increases.

50.Wages go down, store prices increase, workers will go on strike.

Find the inverse of the following conditional statements:

51.If two angles are vertical angles, then the two angles are congruent.

52.If you stay up late, then you will be tired.

53.If Sam does not get a C or above on his midterm, then he will fail the class.

54.If Sandy can beat Jeff in a foot race, then Sandy is a faster runner than Jeff.

55.If you live in Riverside, then you live in California.

56.If two lines are perpendicular, then the two lines intersect at right angles.

57.If two angles are supplementary, then the measure of their sum equals 180o.

58.If it is black, then it is not white.

59.If points lie in the same plane, then the points are coplanar.

60.If you live in Texas, then you live in the U.S.A.

61.If two lines intersect at right angles, then the two lines are perpendicular.

62.If n is an even number, then n2 is an even number.

Find the contrapositive of the following conditional statements:

63.If two angles are vertical angles, then the two angles are congruent.

64.If you stay up late, then you will be tired.

65.If Sam does not get a C or above on his midterm, then he will fail the class.

66.If Sandy can beat Jeff in a foot race, then Sandy is a faster runner than Jeff.

67.If you live in Riverside, then you live in California.

68.If two lines are perpendicular, then the two lines intersect at right angles.

69.If two angles are supplementary, then the measure of their sum equals 180o.

70.If it is black, then it is not white.

71.If points lie in the same plane, then the points are coplanar.

72.If you live in Texas, then you live in the U.S.A.

73.If two lines intersect at right angles, then the two lines are perpendicular.

74.If n is an even number, then n2 is an even number.